National Institute of Environmental Health Sciences

First approaches to the monetary impact of environmental health disturbances in Germany

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Abstract:

Objectives: This article aims to describe essential conditions and starting-points for the monetary evaluation of environmentally attributable diseases. Furthermore, a cost calculation within a scenario analysis is conducted for Germany. Methods: To calculate the costs of environmental health effects we chose a disease-specific perspective. The national statistics of the Federal Statistical Office and the World Health Report burden of disease estimates were used to identify the most important disease categories for Germany. Based on an extensive literature research in computerized databases and the publications of national and international institutions, available costs of illness studies for Germany as well as environmental attributable fractions (EAFs) were identified. Based on these data environmental health costs were calculated with a top-down approach. Results: Direct and indirect environmental costs of illness add up to 15-62 billion (sic)(2006), per year depending on the specific scenario. From our results a tentative scheme is deduced of how the monetary environmental burden of specific diseases is composed and how it can be assigned to major environmental exposures and economic sectors which can be used in setting intervention priorities and evaluating intervention efficiency. Conclusion: Within this article. we were able to calculate environmental health costs for Germany based on available, easy to access data and deduce implications for environmental policy decision-making. However, there are restrictions in data quality, as the aetiology of some diseases with respect to environmental impacts is not very well documented and data has not been collected particularly for Germany.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Ecosystem Changes, Extreme Weather Event, Food/Water Quality, Food/Water Quality, Food/Water Security, Indoor Environment, Precipitation, Sea Level Rise, Temperature

Air Pollution: Ozone, Particulate Matter, Other Air Pollution

Air Pollution (other): SO2; NOx; CO; VOCs

Extreme Weather Event: Drought, Flooding, Hurricanes/Cyclones

Food/Water Quality: Chemical, Chemical, Pathogen, Pathogen

Food/Water Security: Nutritional Quality

Temperature: Extreme Heat, Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Germany

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cancer, Cardiovascular Effect, Developmental Effect, Diabetes/Obesity, Infectious Disease, Mental Health/Stress, Morbidity/Mortality, Respiratory Effect

Cardiovascular Effect: Heart Attack, Other Cardiovascular Effect

Cardiovascular Disease (other): Hypertension

Developmental Effect: Reproductive, Other Functional Deficit

Infectious Disease: Airborne Disease, Foodborne/Waterborne Disease, Vectorborne Disease

Airborne Disease: Tuberculosis

Foodborne/Waterborne Disease: General Foodborne/Waterborne Disease

Vectorborne Disease: General Vectorborne

Mental Health Effect/Stress: Mood Disorder, Schizophrenia/Delusional Disorder

Respiratory Effect: Asthma, Bronchitis/Pneumonia, Chronic Obstructive Pulmonary Disease, Lung Cancer, Upper Respiratory Allergy, Other Respiratory Effect

Respiratory Condition (other) : Chronic lower respiratory disease

Intervention: ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

☑

Model/Methodology: ☑

type of model used or methodology development is a focus of resource

Cost/Economic, Exposure Change Prediction

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

Other Vulnerable Population: Pre-existing health conditions

Resource Type: ☑

format or standard characteristic of resource

Policy/Opinion, Research Article

Timescale: ☑

time period studied

Long-Term (>50 years)

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content